## Amendments to the Claims

1. (previously presented) A method of detecting a low power condition in a satellite navigation system, comprising:

receiving at least one global positioning satellite radio signal;

determining a signal-to-noise ratio of the satellite radio signal;

calculating from the signal-to-noise ratio a low-power condition error contribution; and

calculating a total error based at least in part on the low-power condition error contribution.

2. (original) The method of claim 1, wherein determining the signal-to-noise ratio includes:

measuring a wide band power of the satellite radio signal over a first time period;

measuring a narrow band power of the satellite radio signal over a second time period;

calculating an estimated signal-to-noise ratio based on the narrow band power and the wide band power.

3. (currently amended) The method of claim 2, wherein measuring a wide band power includes averaging the wide band power over the first time period to obtain [[~~the~~]] a value $P_w$ , and wherein measuring a narrow band power includes averaging the narrow band power over the second time period to obtain [[~~the~~]] a value $P_n$.

4. (original) The method of claim 3, wherein the first time period has a length T, the second time period has a length that is M times as long as T, and the signal-to-noise ratio S/No is



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calculated according to the following equation.

$$S/No = 10 \log_{10} [\frac{1}{T} \frac{\bar{P}_n - \bar{P}_w}{M\bar{P}_w - \bar{P}_n}]$$

5. (original) The method of claim 2, wherein calculating an estimated signal-to-noise ratio includes calculating a lower confidence limit.

6. (original) The method of claim 5, wherein determining a signal-to-noise ratio comprises determining a lower confidence limit of the signal-to-noise ratio.

7. (original) The method of claim 6, wherein determining a lower confidence limit includes calculating an estimated signal-to-noise ratio and subtracting a confidence offset from the estimated signal-to-noise ratio.

8. (original) The method of claim 7, wherein the confidence offset dS/No_low is determined by the following equation:

$$P_{lim} = \int_{-dS/No\_low}^{\infty} pdf(x)\, dx.$$

9. (canceled)

10. (previously presented) The method of claim 1, further comprising determining whether the total error exceeds an alert limit, and issuing an alert if the error exceeds the alert limit.



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11. (previously presented) A method of detecting a low power condition in a local area augmentation system, comprising:

receiving a global positioning satellite radio signal;

determining a navigational measurement based at least in part on the received radio signal;

determining a signal-to-noise ratio of the received radio signal; [[and]]

determining an error in the navigational measurement based at least in part on the signal-to-noise ratio; and

determining whether the error exceeds an alert limit, and issuing an alert if the error exceeds the alert limit.

12. (original) The method of claim 11, wherein determining the signal-to-noise ratio includes:

measuring a wide band power of the satellite radio signal over a first time period;

measuring a narrow band power of the satellite radio signal over a second time period;

determining a signal-to-noise ratio based on the narrow band power and the wide band power.

13. (original) The method of claim 12, wherein measuring a wide band power includes averaging the wide band power over the first time period to obtain the value $P_w$, and wherein measuring a narrow band power includes averaging the narrow band power over the second time period to obtain the value $P_n$.

14. (original) The method of claim 13, wherein the first time period has a length T, the second time period has a length that is M times as long as T, and the signal-to-noise ratio S/No is

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calculated according to the following equation.

$$S/No = 10 \log_{10} [\frac{1}{T} \frac{P_n - P_w}{MP_w - P_n}]$$

15. (original) The method of claim 11, wherein determining a signal-to-noise ratio includes calculating a lower confidence limit.

16. (original) The method of claim 15, wherein determining a signal-to-noise ratio comprises determining a lower confidence limit of the signal-to-noise ratio.

17. (original) The method of claim 16, wherein determining a lower confidence limit includes calculating an estimated signal-to-noise ratio and subtracting a confidence offset from the estimated signal-to-noise ratio.

18. (original) The method of claim 17, wherein the confidence offset dS/No_low is determined by the following equation:

$$P_{lim} = \int_{-dS/No\_low}^{\infty} pdf(x)\, dx.$$

19. (canceled)

20. (original) In a local area augmentation system, a system for detecting a low-power condition comprising:

a wide band power estimator operative to measure an average wide band power;



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a narrow band power estimator operative to measure an average narrow band power;

a signal-to-noise ratio module operative to calculate a signal-to-noise ratio from the estimated wide band power and the estimated narrow band power; and

a low-power error module operative to calculate, from the signal-to-noise ratio, an error contribution attributable to a low-power condition.

21. (original) The system of claim 20, wherein:

the signal-to-noise ratio module further comprises confidence limit logic operative to determine a lower confidence limit; and

wherein the signal-to-noise ratio calculated by the signal-to-noise ratio logic is the lower confidence limit.

22. (previously presented) The system of claim 21, further comprising:

a total error module operative to calculate a total error based at least in part on the low-power condition error contribution; and

alert logic operative to determine whether the total error exceeds an alert limit and to issue an alert if the error exceeds the alert limit.

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**Response to the Office Action**

Claims 1-8, 10-18 and 20-22 are pending in the application.

1. The Applicants hereby respond to the new grounds of rejection raised by the Examiner.

2. The specification has been amended to correct the typographical error objected to by the Examiner.

3. Claim 3 has been amended to show the antecedent basis for terms objected to by the Examiner.

4. The Examiner rejected Claim 1 as being anticipated by Legrand. According to the Examiner, Legrand teaches "calculating a total error based at least in part on the low power condition error contribution." The Applicants respectfully disagree. As stated in Legrand, "The idea of our algorithm is to find the optimal value of the pole *p* in order to minimize the total tracking error. . . ." (Page 4, last ¶.) The system proposed by Legrand does not actually calculate a total error. Instead, the system of Legrand merely calculates an optimization function $f(p)$. (Page 5, col. 1.) The intent of Legrand is to minimize the error, not to report on the error level. Actually "calculating a total error," as recited in claim 1, is important for determining the 1-sigma error level in real time, which, for example, helps to determine whether an aircraft landing can be conducted safely. Accordingly, Legrand does not teach all the elements of claim 1, and the Applicant respectfully requests withdrawal of the rejection of claim 1 under 35 U.S.C. § 102(b).

5. The examiner rejected claims 20-21 as being anticipated by Parkinson. According to the Examiner, Parkinson teaches a "low-power error module operative to calculate, from the signal-to-noise ratio, an error contribution attributable to a low-power condition." The Applicants respectfully disagree. The portion of the Parkinson reference identified by the Examiner, i.e. the first paragraph of page 392, gives the mean and the variance for wide band power (WBP) and narrow band power (NBP) themselves. It does not give the statistics for an error contribution attributable to a low-power

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condition. Determining the variance of wide band power and narrow band power is not the same as determining an error contribution attributable to a low-power condition. The variance of WBP and NBP is insufficient in determining whether, for example, an aircraft landing can be conducted safely. Accordingly, Parkinson does not teach all the elements of claim 20, and the Applicant respectfully requests withdrawal of the rejection of claim 20 under 35 U.S.C. § 102(b). Claim 21 depends from and incorporates all the limitations of claim 20. Accordingly, claim 21, is patentable over the prior art of record for at least the reasons given with respect to claim 20.

6. Claims 2-8 depend from and incorporate all the limitations of claim 1. Accordingly, claims 2-8, are patentable over the prior art of record for at least the reasons given with respect to claim 1.

7. Claim 10 depends from and incorporates all the limitations of claim 1. Accordingly, claim 10 is patentable over the prior art of record for at least the reasons given with respect to claim 1.

The Examiner further rejects claim 11 on the contention that it is "unpatentable over Legrand, as applied to claim 1, and further in view of either one of Loh and Braff." The Examiner's contention that Legrand can be applied to claim 11, however, is incorrect. In particular, claim 11 recites the step of "determining an error in the navigational measurement." As noted above, Legrand does not operate to calculate a total error, much less an error in a "navigational measurement," such as position, velocity, acceleration, or time. Accordingly, the prior art of record does not teach the elements of claim 11.

8. Claims 12-18 depend from and incorporate all the limitations of claim 11. Accordingly, claims 12-18, are patentable over the prior art of record for at least the reasons given with respect to claim 11.

Claim 22 depends from and incorporates all the limitations of claim 20. Accordingly, claim 22 is patentable over the prior art of record for at least the reasons given with respect to claim 20.

Applicant believes claims 1-8, 10-18, and 20-22 are in condition for allowance. Early



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notification to that effect is solicited. If the Examiner has any questions or identifies any issues that can be resolved over the telephone, the Examiner is invited to contact the Applicant's representative at the number given below.

Respectfully submitted,

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